# Transgender Medical Treatments and Procedures Amendments (S.B. 16, 2023)

## Report to the Utah Legislature
## Health and Human Services Interim Committee

May 2025

# Executive Summary

In 2023, the Utah Legislature passed S.B. 16 Transgender Medical Treatments and Procedures Amendments, which was signed into law on January 28, 2023. The law requires the Utah Department of Health and Human Services (DHHS) to conduct a systematic medical evidence review (systematic review) of the use of hormonal agents in the medical treatment of transgender minors under the age of 18 with gender dysphoria. This systematic review is required to occur in consultation with the Utah Division of Professional Licensing (DOPL), the Utah Physicians Licensing Board, the Utah Osteopathic Physician and Surgeon's Licensing Board, the University of Utah, and a Utah non-profit hospital system with experience in specialty pediatric care. Within this report, the individuals and entities DHHS is required to consult with will be called advisors (Appendix A - advisors and qualifications).

The "purpose of the systematic medical evidence review is to provide the Legislature with recommendations to consider when deciding whether to lift the moratorium" on the prescription of hormonal transgender treatments to minors diagnosed with gender dysphoria. The moratorium was established in the same law.[1] The systematic medical evidence review was conducted on behalf of DHHS by the University of Utah College of Pharmacy's Drug Regimen Review Center (DRRC). The DRRC provides experts in the methodology of evidence synthesis. The scientific questions and research methodology are described and summarized in the full DRRC report.

As required by Utah Code §26B-1-239, the DRRC systematic review and this report of recommendations addresses the following:

- Analyze hormonal transgender treatments that are prescribed to minors with gender dysphoria, including any effects and side effects of the treatment.
- Determine whether any hormonal transgender treatment has been approved by the federal Food and Drug Administration (FDA) to treat gender dysphoria.
- Review the scientific literature regarding hormonal transgender treatments in minors, including short-term and long-term impacts, literature from other countries, and rates of desistance and time to desistance, where applicable.
- Review the quality of evidence cited in any scientific literature including to analyze and report on the quality of the data based on techniques such as peer review,

[1] S.B. 16 Transgender Medical Treatments and Procedures Amendments also established that it is unprofessional conduct for a health care provider to perform, or cause to be performed, any primary or secondary sex characteristic surgical procedure upon an individual who is less than 18 years old. This report does not evaluate that practice.

selection bias, self-selection bias, randomization, sample size, and other applicable best research practices.

- Include high quality clinical research assessing the short-term and long-term benefits and harms of hormonal transgender treatments prescribed to minors with gender dysphoria and the short-term and long-term benefits and harms of interrupting the natural puberty and development processes of the child.
- Specify the conditions under which DHHS recommends that a treatment not be permitted.
- Recommend what information a minor and the minor's parent should understand before consenting to a hormonal transgender treatment and the best practices a health care provider should follow to provide this information.
- Describe the assumptions and value determinations used to reach a recommendation.
- Include any other information DHHS, in consultation with its advisors, determines would assist the Utah Legislature in enacting legislation related to the provision of hormonal transgender treatment to minors.

While hormonal transgender treatments (cross-sex hormone or hormone blocking agent) are often prescribed to mitigate symptoms associated with gender dysphoria, for transgender minors (individuals who are younger than 18 years old) an assessment should be conducted to evaluate the short- and long-term risks of the treatments and the likely consequences of treating versus not treating gender dysphoria.

Hormonal transgender treatments include cross-sex hormones and puberty blocking agents. Cross-sex hormonal treatment (CSHT) includes feminizing hormones (estrogen-based) in an individual assigned male at birth based on traditional biological indicators; or masculinizing hormones (testosterone-based) in an individual assigned female at birth. Puberty blocking agents are gonadotropin-releasing hormone agents used to suppress puberty. Gonadotropin-releasing hormones cause the pituitary gland in the brain to make and secrete hormones that cause the testicles to make testosterone in males and the ovaries to make estrogen and progesterone in females. Both forms of hormonal transgender treatments are initiated after puberty onset (variable as to age).

Hormonal transgender treatments are a treatment option intended to mitigate the distress among transgender individuals with a diagnosis of gender dysphoria. When left untreated, individuals with gender dysphoria may experience psychological and social harms.

The Utah Department of Health and Human Services does not take a position on whether to lift the moratorium. However, if the Legislature decides to lift the moratorium, as required by statute, DHHS provides the following for the Legislature to consider:

1. Create a hormonal transgender treatment board managed by DHHS, in partnership with the Department of Commerce, that advises on certification, continuing education, minimum standards of care, and consent procedures.
2. Limit providers who can deliver care to demonstrated experts.
3. Limit care to a comprehensive interdisciplinary care team model that provides integrated physical and mental health care using evidence-based protocols, evaluates its outcomes, and reports regularly to the Utah Legislature.
4. Institute an enhanced and explicit informed consent and assent process.

## Implementation timeline and process

S.B. 16 (2023) did not specify an implementation timeline for the completion of the systematic review. After S.B. 16 (2023) was signed into law, DHHS secured a contract with the DRRC to complete the systematic review, which commenced in April 2023. There were some barriers in recruiting all of the required advisors and DHHS consulted with DOPL to secure advisors from the Physicians Licensing and Osteopathic Physician and Surgeon's Licensing Boards.

Once the advisors were selected, the DRRC presented a summary of its draft report and evidence synthesis of those studies capturing mental health outcomes. During this presentation, it became clear there were insufficient resources for DRRC to conduct a full evidence synthesis capturing all of the studies and priority outcomes included in its report. As a result of that presentation, the advisors requested additional data and evidence synthesis on long-term outcomes, which was required by the Utah Legislature. The work conducted by DRRC included an analysis of the Cass Review that was presented to the Health and Human Services Interim Committee.[2]

To facilitate a timely systematic review, the DRRC established some high-priority outcomes to focus their work, including mental health, psychosocial functioning, body changes, body image, bone health, cardiovascular and metabolic risk factors, and cancer. Infertility is a known risk of CSHT and was not an outcome of focus in the DRRC systematic review.

[2] June 19, 2024. *Transgender Treatment for Minors.* Utah State Capitol, 30 House Building. Salt Lake City, Utah

Among all studies reviewed, there was no evidence of hormonal transgender treatments being offered to pre-pubertal children. In addition, the DRRC reviewed the federal Food and Drug Administration (FDA) indications for all available hormonal transgender treatments; none have been approved by the FDA to treat gender dysphoria in minors or adults. The conclusions and findings of the systematic evidence review are established by the DRRC in its full systematic review, *Gender-Affirming Medical Treatments for Pediatric Patients with Gender Dysphoria.*[3]

The systematic review completed by the DRRC found 134 primary English-language clinical studies representing more than 28,056 transgender minors from all over the world. Although the DRRC found no clinical trials addressing transgender minors in the United States (US), four clinical trials from the Netherlands were included in the review, examining outcomes such as hormone levels, bone changes, blood pressure, growth, and body composition in minors receiving hormonal transgender treatments.

After review of all the available data and the DRRC evidence synthesis presentations, the advisors determined that no additional information was needed in order to make recommendations. All advisors were asked to make individual recommendations directly to DHHS. Once all recommendations were made, the advisors and DHHS agreed to assumptions and value determinations, as well as a process for critically evaluating all recommendations.

## Foundational values

DHHS, in consultation with its advisors, established several value determinations and assumptions that are woven into the practice of medicine, the doctor-patient relationship, and modern clinical care paradigms to guide this systematic review conducted by the DRRC:

1. Harm prevention and minimization are foundational, requiring a broad perspective that encapsulates both short- and long-term risks.
2. Uncertainty is a part of clinical care, requiring shared decision-making and consideration of patient and family values.
3. Care models should be interdisciplinary, treat the whole person, and be patient- and family-centered.

[3] LaFleur J, Heath L, Gonzalez V., et al. Gender-affirming medical treatments for pediatric patients with gender dysphoria. A report of the University of Utah College of Pharmacy Drug Regimen Review Center (DRRC). Salt Lake City, UT: University of Utah: 2024

# FDA-approved indications and relevant off-label uses

None of the hormonal transgender treatments identified by the DRRC in their search of standard tertiary databases (e.g., Micromedex, UpToDate, FDA Orange Book) have specifically been approved by the FDA to treat gender dysphoria in minors or adults. However, these treatments have other various FDA-approved indications. The most common FDA approved indications in minors include contraception, acne vulgaris, central precocious puberty, and pubertal delay. The most common FDA-approved indications in adults include contraception, breast cancer, prostate cancer, endometriosis, and menopause.

The FDA has not approved the use of these treatments for transgender minors or adults. Nonetheless, administering them off-label has become the standard of care. Off-label use refers to the practice of prescribing drugs that are approved for use in the United States by the FDA, but using them to treat indications that are not expressly approved by the FDA. Off-label use of medications in general is particularly common among children, with off-label use rates as high as 38% of prescriptions and 79% of children. Since a majority of drugs are studied and approved by the FDA in adults before children, drug companies rarely go to the effort to obtain FDA approval for use in children without a financial incentive. Because off-label use is legal and common, it is also unusual to seek FDA approval for new indications once a drug has been approved by the FDA.

The DRRC searched reputed pharmacy compendia (i.e., Micromedex and Lexicomp) to assess off-label use of hormonal transgender treatments in minors. Six treatments specifically had an indexed off-label use (all in Micromedex) related to gender dysphoria for minors:

- Triptorelin pamoate
- Estradiol
- Testosterone
- Testosterone undecanoate
- Testosterone cypionate
- Testosterone enanthate

A complete summary of the DRRC methods and findings on FDA-approved indications and off-label use, is contained in the systematic review. See Part I.2.0. Agents Used or Recommended for Use in Pediatric TGNB Patients.

## Desistance and regret

S.B. 16 requires an evaluation of rates of and time to desistance. Notably, desistance is a concept that has been poorly defined in the literature. A recent systematic literature review found 30 definitions[4] of desistance, with four overarching trends:

1. Desistance as the disappearance of gender dysphoria after puberty.
2. Desistance as a change in gender identity from transgender to sex assigned at birth.
3. Desistance as the disappearance of distress.
4. Desistance as the disappearance of the desire for medical intervention.

A complete summary of the 32 citations reviewed by DRRC in their initial review on persistence, desistance, and regret, is contained in the systematic review. See Part I.5.0. Objective 4: Persistence, Desistance, and Regrets.

## Assumptions and value determinations

S.B. 16 requires enumeration of any assumptions and value determinations DHHS used in creating recommendations should the Utah Legislature decide to lift the current moratorium on the prescription of hormonal transgender treatments to minors in Utah. DHHS sought guidance from the advisors to inform the following assumptions and value determinations to guide its recommendations:

### Harm prevention and minimization are foundational, requiring a broad perspective that encapsulates both short- and long-term risks.

Virtually all medical codes of conduct include as their foundation the relief of suffering and doing no harm. Individuals who are transgender have a gender identity that does not correspond with their biological sex at birth. Gender dysphoria narrowly refers to the distress associated with the incongruence of one's physical appearance with their gender identity. Distress in gender dysphoria may manifest as anxiety, depression, suicidality, or various forms of psychosocial distress. Not all individuals who are transgender will be diagnosed with gender dysphoria and not all individuals diagnosed with gender dysphoria will require hormonal transgender treatments to alleviate the distress of gender dysphoria.

[4] Karrington B. Defining Desistance: Exploring Desistance in Transgender and Gender Expansive Youth Through Systematic Literature Review. Transgend Health. 2022 Jun 13;7(3):189-212.

Hormonal transgender treatments are a medical treatment option intended to mitigate the distress of gender dysphoria. An assessment of the risks and benefits of hormonal transgender treatments should not only include the short- and long-term risks of hormonal transgender treatments themselves, but the likely consequences of treating versus not treating gender dysphoria. These consequences include psychological and social harms associated with gender dysphoria in minors who are transgender[5,6].

## Uncertainty is a part of clinical care, requiring shared decision-making and consideration of patient and family values.

The medical treatment of transgender minors, like many other aspects of clinical care regardless of age or diagnosis, is rife with uncertainty. Medical decision-making can be complicated by a number of factors, including but not limited to:

- Limited evidence. There may not be much applicable evidence to guide a decision, especially at the intersection of physical and mental health conditions.
- Subjective consequences. The consequences and trade-offs of a decision may be subjective and value-laden.
- Physician factors. The physician may not have a long-term relationship with the patient or family, or may not understand their values.
- Unanticipated decisions. Significant health care decisions may need to be made quickly, while someone is sick or deteriorating.

Children's physical and psychological development can vary widely from infancy to adolescence, which can impact decision-making. Shared decision-making before the age of consent involves the patient, family, and provider deliberating on the basis of shared evidence, supporting the patient and family's choice among multiple options. Bioethical, clinical, and communication principles that support navigating uncertainty in shared decision-making include[7]:

[5] Marconi, E., Monti, L., Marfoli, A. et al. A systematic review on gender dysphoria in adolescents and young adults: focus on suicidal and self-harming ideation and behaviours. Child Adolesc Psychiatry Ment Health 17, 110 (2023).
[6] Connolly, M., Zervos, M. et al. The mental health of transgender youth: Advances in understanding. J Adolesc Health 2016;59(5):489-495.
[7] Berger Z. Navigating the unknown: shared decision-making in the face of uncertainty. J Gen Intern Med. 2015 May;30(5):675-8.

- **Honesty.** Honesty involves presenting unbiased information and options; intersects with other concepts such as integrity; and recognizes the patient's and family's autonomy.
- **Recognition of emotion.** Providers, patients, and families use emotion, bias, and other non-logical, non-cognitive modalities in finding their way to a decision; acknowledging this enables all parties to feel more satisfied with difficult decisions.
- **Hope.** Both the provider and patient need to allow space for positive outcomes in the face of uncertainty.
- **Support/coordination of care.** When the course of treatment and outcomes are uncertain, primary providers often turn to specialists; role clarity is essential in the presentation of possible options and follow-up of their execution.
- **Willingness to readdress.** New information may make the future course clearer or change the range of options; thereby, requiring the possibility of future discussions in which other options might be chosen.
- **Respecting personal decisions.** The personal preferences and values of patients and families are important to the outcome of the decision and should be respected as such by the clinician.
- **Clarification of goals over time.** Just as the patient, family, and provider should be prepared to revisit options in light of new information and circumstances, they should also be ready to discuss modification of goals over time.
- **A lack of a decision is possible.** Offering the status quo and not intervening is as much an option as pursuing a specific treatment plan.

Rather than justifying delay or refusal of treatment, uncertainty demands careful assessment and reassessment of the whole person, both physically and psychosocially. Health care providers, patients, and their families must share decisions based on an accurate assessment of the patient's condition and the evidence before them, and be open to revisit and readjust the clinical care trajectory as things evolve.

## Care models should be interdisciplinary, treat the whole person, and be patient- and family-centered.

In health care, an interdisciplinary team comprises professionals from various disciplines who work in collaboration to address a patient with multiple physical and psychological needs. An interdisciplinary team is not just a group of experts implementing separate treatment plans for a patient. They complement one another's expertise and actively coordinate to work toward shared treatment goals. Interdisciplinary teams differ from multidisciplinary teams who work in parallel, within their respective disciplines, to devise

their own care plans. The vast majority of evidence summarized in this report comes from care delivered in specialized programs providing an interdisciplinary approach to the care of transgender youth. It is not possible to extrapolate the findings from this systematic review to multidisciplinary approaches to care.

Whole person care considers a person's entire body and mind, including social and environmental factors that may be at play in the experience of care and in the response to treatment plans. A key component of whole person care is a shared care plan that helps ensure everyone involved in a patient's care knows what they need and how to best help them. Whole person care is a patient- and family-centered approach to care with a key goal to promote the health and well-being of individuals and families and to maintain their control. Core concepts of patient- and family-centered care include:

- **Respect and dignity.** Health care providers listen to and honor patient and family perspectives and choices. Patient and family knowledge, values, beliefs and cultural backgrounds are incorporated into the planning and delivery of care.
- **Information sharing.** Health care providers communicate and share complete and unbiased information with patients and families in ways that are affirming and useful. Patients and families receive timely, complete, and accurate information in order to effectively participate in care and decision-making.
- **Participation.** Patients and families are encouraged and supported in participating in care and decision-making at the level they choose.
- **Collaboration.** Patients, families, health care providers, and health care leaders collaborate in policy and program development, implementation, and evaluation.

# Recommendations

Given the results of the systematic evidence review, the following recommendations are intended to establish a system of care unique to Utah that balances patient autonomy, family values, evidence-based best practice, and patient safety. In accordance with the requirements of S.B. 16 Transgender Medical Treatments and Procedures Amendments (2023) the following are recommendations for the Legislature to consider when deciding whether to lift the moratorium on the prescription of hormonal transgender treatments to minors diagnosed with gender dysphoria. As noted previously, DHHS takes no position on whether the Legislature should lift the moratorium.

1. If the Legislature lifts the moratorium, consider creating a hormonal transgender treatment board managed by DHHS, in partnership with the Department of Commerce, that advises on certification, continuing education, minimum standards of care, and consent procedures.

If the Legislature lifts the moratorium, it should consider creating a Hormonal Transgender Treatment Board (HTTB) managed by DHHS, in partnership with the Department of Commerce, that advises on certification, continuing education, minimum standards of care, and consent procedures. The membership of the HTTB could be similar to the advisors required by S.B. 16 (2023). In accordance with Utah Code Section 58-1-603, the Division of Professional Licensing (DOPL) is responsible for establishing and managing a certification program for health care providers and mental health professionals engaged in the evaluation and treatment of transgender minors. The Utah Legislature has already determined specific aspects of the certification and continuing education process, including:

- Completion of at least 40 hours of education related to transgender health care for minors from an approved organization; and
- Completion of at least 20 hours of continuing education related to transgender health care for minors from an approved organization during the individual's continuing education cycle.

The HTTB should be leveraged as an advisory body to DOPL to ensure a high-quality certification and continuing education program that is informed by, and adapted to an emerging evidence base. Potential considerations to enhance the current certification program, if not already in place, may include:

- Creating and maintaining a database of certified providers.
- Ensuring certification includes specific training on shared decision-making and ethics best practices.
- Creating and maintaining an approved training resource list publicly available for those seeking certification.

The HTTB should also be empowered to conduct an ongoing review of the evidence related to hormonal transgender treatments and to amend their recommendations on a regular basis in light of this review. This could, for example, mean providing recommendations to

rescind or revise regulations that permit the use of hormonal transgender treatments that are later found to be unhelpful for gender dysphoria.

In addition to the current regulatory framework outlining certification and continuing education requirements, the following are proposed by DHHS as additional regulatory components for the Utah Legislature to consider if it decides to lift the moratorium, with ongoing guidance from the HTTB, once established:

### 2. Limit providers who can deliver care to demonstrated experts.

Currently, Utah Code Section 58-1-603 defines health care providers as physicians, Utah-licensed physician assistants, and nurse practitioners; mental health professionals are defined as board-certified psychiatrists, Utah-licensed psychologists, clinical social workers, marriage and family therapists, and clinical mental health counselors. While all of these provider types may be appropriate as part of an interdisciplinary care team approach for transgender minors, certain aspects of care, such as the prescribing of hormonal transgender treatments or comprehensive mental health assessments and psychotherapy, may more appropriately be limited to those licensed professionals with the requisite training and experience.

At least for the near-term, as a system of care can be developed in Utah if the Legislature chooses to lift the moratorium, DHHS recommends the prescribing of hormonal transgender treatments be limited to Utah-licensed physicians who have completed the DOPL certification program. Any limitations placed on providers who can prescribe hormonal transgender treatments also requires a process to audit credentials and treatment records to ensure compliance. The HTTB should be instrumental in developing further recommendations related to the alignment of licensure and specific aspects of care.

### 3. If the Legislature decides to lift the moratorium, it should consider limiting care to a comprehensive interdisciplinary care team model that provides integrated physical and mental health care using evidence-based protocols, evaluates its outcomes, and reports regularly to the Utah Legislature.

Evidence-based standards of care emerge through carefully conducted research and exist for the treatment of minors with gender dysphoria as demonstrated by the large body of evidence compiled for this and other systematic reviews. The longest-term outcomes

associated with the use of hormonal transgender treatments were provided as part of an interdisciplinary care team approach, and it cannot be assumed that positive outcomes are generalizable to treatment outside of a similar setting.

Bolstering the integration of already strained mental health resources into the treatment paradigm for Utah minors with gender dysphoria is a critical component of this recommendation that requires careful attention and follow-up through an auditing process. Prescribers should work closely with the mental health providers to ensure seamless communication during the therapeutic course, including any adverse events in treatment. Where possible, established mental health providers should be involved in shared decision-making surrounding engagement with a course of treatment with a hormonal transgender treatment.

Finally, if the Legislature decides to lift the moratorium, DHHS recommends biennial reporting of outcomes by any interdisciplinary care team model pursuing the hormonal transgender treatment of minors in Utah to the Utah Legislature. One consideration to ensure compliance with established procedures for the use of hormonal transgender treatments in Utah minors is a statewide centralized mechanism for, at a minimum, patient and prescriber tracking.

### 4. Institute an enhanced and explicit informed consent and assent process.

Hormonal transgender treatments may lead to irreversible physical changes. Thus, enhanced informed consent and assent processes should be utilized prior to initiating hormonal transgender treatments in minors.

Informed consent is a process that allows a patient to make a voluntary decision about medical care after being educated about the risks, benefits, and alternatives of a procedure or intervention. It is a fundamental right that is central to medical ethics, patient-physician trust, and individual autonomy. If the Legislature decides to lift the moratorium, the consent processes for hormonal transgender treatments should be conducted with an interdisciplinary team and take sufficient time for an evaluation of all of the physical, psychological, and social risks and benefits of the treatment sought.

As it relates to any health care of minors, **consent** is a process by which a legal guardian voluntarily confirms his or her willingness for their child to receive treatment after having been informed of all aspects of the treatment, including all known and potential risks, benefits, and alternatives, relevant to the decision to receive treatment. **Assent** is an

agreement by an individual not competent to give legally-valid informed consent (e.g., a minor under age 18), and is about respecting a child's developing capacity by assisting them in understanding their condition and treatment at a developmentally appropriate level and involving them in appropriate decision-making tasks. As such, providers engaged in assent procedures require a high level of individualized communications skills matched to the child's developmental stage. It should be noted that age alone does not indicate a child's ability to assent, and other factors such as knowledge, health status, anxiety, values, family, culture, and religious contexts play an important role in their ability to understand and make decisions.

An important caution as it relates to informed consent and assent procedures is the avoidance of an overly narrow focus on the initiation of hormonal transgender treatments, as has been the more typical practice in the United States. Greater emphasis on the important role that mental health professionals can play in alleviating gender dysphoria and facilitating changes in gender role and psychosocial adjustment through comprehensive mental health assessment and psychotherapy is required and should be included as part of an enhanced consent and assent process and interdisciplinary approach to care.

The HTTB should play a central role in advising informed consent and assent procedures. Certain aspects of informed consent are well-suited to a more standardized approach that enumerates in clear detail the various risks, benefits, and alternatives. For example, standardized templates for informed consent could be created by DHHS staff informed by the HTTB, including regular updates to such templates as new evidence emerges. On the other hand, informed assent must be more individualized; however, the HTTB could inform recommendations on the necessary qualifications of those conducting informed assent procedures. For example, it may be appropriate to limit those who conduct informed assent procedures to certain provider types or levels of experience.

# Appendix A: Advisors and Qualifications

## William Francis DO

*Disclosure:* No financial ties to industry or pharmaceutical companies related to substances or treatments reviewed in this report.
Dr. William Francis is serving as an advisor representing the Utah Osteopathic Physician and Surgeon's Licensing Board.

## Angelo Giardino MD PhD MPH

*Disclosure:* No financial ties to industry or pharmaceutical companies related to substances or treatments reviewed in this report.
Dr. Angelo Giardino is serving as an advisor representing a Utah non-profit hospital system with experience in specialty pediatric care, Intermountain Primary Children's.

## Michelle Hofmann MD, MPH, MHCDS

*Disclosure:* No financial ties to industry or pharmaceutical companies related to substances or treatments reviewed in this report.
Dr. Michelle Hofmann served as the executive medical director of DHHS and deputy director of the DHHS Clinical Services Section from July 2022 through September 2024 and led the development of the recommendations provided to the Utah Legislature. Beginning October 2024, Dr. Hofmann joined the University of Utah Spencer Fox Eccles School of Medicine as Senior Associate Dean. Dr. Hofmann is board-certified in Pediatrics.

## Yoon Kim-Butterfield MD

*Disclosure:* No financial ties to industry or pharmaceutical companies related to substances or treatments reviewed in this report.
Dr. Yoon Kim-Butterfield served as Medical Director of Utah Medicaid from July 2023 to January 2025. During that time, she participated as an advisory member in the development of the recommendations to the Utah Legislature. She is board-certified in Internal Medicine and Endocrinology.

## Brooks Keeshin MD

*Disclosure:* No financial ties to industry or pharmaceutical companies related to substances or treatments reviewed in this report.

Dr. Brooks Keeshin is serving as an advisor representing the University of Utah. Dr. Keeshin is a Professor of Pediatrics at the University of Utah and is board-certified in the areas of Pediatrics, Child Abuse Pediatrics, and Child Psychiatry.

## Nikki Mihalopoulos MD MPH

*Disclosure:* No financial ties to industry or pharmaceutical companies related to substances or treatments reviewed in this report.
Dr. Nikki Mihalopoulos is serving as an advisor representing the University of Utah.

## Alan Smith MD

*Disclosure:* No financial ties to industry or pharmaceutical companies related to substances or treatments reviewed in this report.
Dr. Alan Smith is serving as an advisor representing the Utah Physicians Licensing Board. Dr. Smith has practiced full-time Family Medicine in Delta, Utah, for the past 33 years. He is board-certified by the American Board of Family Medicine and the National Board of Physicians and Surgeons. He is currently the Chairman of the State of Utah Physician and Surgeon Licensing Board.

## Katherine Smith PharmD

*Disclosure:* No financial ties to industry or pharmaceutical companies related to substances or treatments reviewed in this report.
Dr. Katherine Smith is serving as an advisor representing the Roseman University of Health Sciences.

## Jennifer Strohecker PharmD

*Disclosure:* No financial ties to industry or pharmaceutical companies related to substances or treatments reviewed in this report.
Dr. Jennifer Strohecker is the Director of the DHHS Division of Integrated Healthcare and State Medicaid Director. Dr. Strohecker brings more than 20 years of clinical and administrative pharmacy experience to this role from a variety of settings, including inpatient hospital, ambulatory medicine and managed care settings. Dr. Strohecker served as the State Pharmacy Director for 4 years.